

WHAT IS CLAIMED IS:

1. A display device comprising:
  - a pixel having a first light emitting element and a first transistor which is connected
  5. to the first light emitting element;
    - a monitoring element having a second light emitting element and a second transistor which is connected to the second light emitting element; and
    - a power source voltage controller,
      - wherein the power source voltage controller functions to modify a voltage between
  10. the source and drain of the second transistor to be a constant value.
2. A display device comprising:
  - a pixel having a first light emitting element and a first transistor which is connected to the first light emitting element;
  15. a monitoring element having a second light emitting element and a second transistor which is connected to the second light emitting element; and
  - a power source controller to set a voltage between the source and drain of the first transistor and a voltage between the source and drain of the second transistor in the vicinity of the boundary between the saturation region and the linear region.
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3. A display device comprising:
  - a pixel having a first light emitting element and a first transistor which is connected to the first light emitting element;
  - a monitoring element having a second light emitting element and a second
  25. transistor which is connected to the second light emitting element; and
  - a power source voltage controller to set a voltage between the source and drain of the first transistor in the vicinity of the boundary between the saturation region and the linear region by modifying the voltage between the source and drain of the second transistor to be a constant value.

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4. A display device comprising:  
a pixel having a first transistor and a first light emitting element which is connected  
to a first electrode of the first transistor;  
a monitoring element having a second transistor and a second light emitting  
element which is connected to a first electrode of the second transistor; and  
5 a power source voltage controller,  
wherein an input terminal of the power source voltage controller is connected to  
second electrodes of the first and second transistors respectively;  
an output terminal of the power source voltage controller is connected to the  
10 electrodes of the first and second light emitting elements; and  
a function to set a voltage between the source and drain of the first transistor and a  
voltage between the source and drain of the second transistor in the vicinity of the  
boundary between the saturation region and the linear region.
- 15 5. A display device according to claim 2:  
wherein the saturation region establishes  $|V_{ds}| > |V_{gs} - V_{Th}|$  with respect to a V-I  
characteristic of the transistor.
6. A display device according to claim 3:  
20 wherein the saturation region establishes  $|V_{ds}| > |V_{gs} - V_{Th}|$  with respect to a V-I  
characteristic of the transistor.
7. A display device according to claim 4:  
25 wherein the saturation region establishes  $|V_{ds}| > |V_{gs} - V_{Th}|$  with respect to a V-I  
characteristic of the transistor.
8. A display device according to claim 2:  
30 wherein the linear region establishes  $|V_{ds}| < |V_{gs} - V_{Th}|$  with respect to a V-I  
characteristic of the transistor.

9. A display device according to claim 3:

wherein the linear region establishes  $|V_{ds}| < |V_{gs} - V_{Th}|$  with respect to a V-I characteristic of the transistor.

5 10. A display device according to claim 4:

wherein the linear region establishes  $|V_{ds}| < |V_{gs} - V_{Th}|$  with respect to a V-I characteristic of the transistor.

11. A display device comprising:

10 a pixel having a first transistor and a first light emitting element which is connected to a first electrode of the first transistor;

a monitoring element having a second transistor and a second light emitting element which is connected to a first electrode of the second transistor; and

a power source voltage controller,

15 wherein an input terminal of the power source voltage controller is connected to second electrodes of the first and second transistors respectively; and

an output terminal of the power source voltage controller is connected to the electrodes of the first and second light emitting elements.

20 12. A display device comprising:

a pixel having a first transistor and a first light emitting element,

wherein a first electrode of the first transistor and a first electrode of the first light emitting element are connected to the pixel;

a monitoring element having a second transistor and a second light emitting element,

wherein a first electrode of the second transistor and a second electrode of the second light emitting element are connected to the monitoring element; and

a power source voltage controller;

wherein an input terminal of the power source voltage controller is connected to the 30 first electrode of the second transistor electrically; and

an output terminal of the power source voltage controller is connected to a second electrode of the first light emitting element and the second electrode of the second light emitting element electrically.

- 5        13. A display device comprising:
- a plurality of signal lines and a plurality of scanning lines;
- a pixel having a first transistor which is connected to the signal lines and the scanning lines and a first light emitting element which is connected to a first electrode of the first transistor;
- 10      a monitoring element having a second transistor which is connected to the scanning lines and a second light emitting element which is connected to a first electrode of the second transistor; and
- a dummy pixel having a third transistor which is connected to the scanning lines and a third light emitting element;
- 15      wherein the signal lines in the pixel are connected to an FPC; and
- the signal lines in the monitoring element are connected to a power source voltage controller.

14. A display device comprising:
- 20      a pixel having a first transistor and a first light emitting element which is connected to a first electrode of the first transistor;
- a monitoring element having a second transistor and a second light emitting element which is connected to a first electrode of the second transistor;
- a panel mounting a dummy pixel having a third transistor and a third light emitting element; and
- 25      a printed circuit board mounting a power source voltage controller which is connected to the pixel and the monitoring element, a power source circuit, and a controller, wherein an input terminal of the power source voltage controller is connected to second electrodes of the first and second transistors; and
- 30      an output terminal of the power source voltage controller is connected to electrodes

of the first and second light emitting elements.

15. A display device according to claim 1:

wherein the power source voltage controller is an operational amplifier.

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16. A display device according to claim 2:

wherein the power source voltage controller is an operational amplifier.

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17. A display device according to claim 3:

wherein the power source voltage controller is an operational amplifier.

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18. A display device according to claim 4:

wherein the power source voltage controller is an operational amplifier.

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20. A display device according to claim 12:

wherein the power source voltage controller is an operational amplifier.

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21. A display device according to claim 13:

wherein the power source voltage controller is an operational amplifier.

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22. A display device according to claim 14:

wherein the power source voltage controller is an operational amplifier.

23. A display device comprising:

a pixel having a first transistor and a first light emitting element,

wherein a first electrode of the first transistor and a first electrode of the first light

emitting element are connected to the pixel;

a monitoring element having a second transistor and a second light emitting element,

wherein a first electrode of the second transistor and a second electrode of the second light emitting element are connected to the monitoring element; and

5 a switching regulator;

wherein a reference voltage input terminal of the switching regulator is connected to the first electrode of the second transistor electrically; and

an output terminal of the switching regulator is connected to a second electrode of the first light emitting element and the second electrode of the second light emitting element electrically.

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24. A control method of a display device comprising:

a pixel having a first light emitting element and a first transistor which is connected to the first light emitting element;

15 a monitoring element having a second light emitting element and a second transistor which is connected to the second light emitting element; and

a power source voltage controller which is connected to the pixel and the monitoring element,

20 wherein the power source voltage controller decides voltages between the source and drain of the first and second transistors.

25. A control method of a display device comprising:

a pixel having a first light emitting element and a first transistor which is connected to the first light emitting element;

25 a monitoring element having a second light emitting element and a second transistor which is connected to the second light emitting element; and

a power source voltage controller which is connected to the pixel and the monitoring element,

30 wherein the power source voltage controller sets voltages between the source and drain of the first and second transistors in the vicinity of the boundary between the

saturation region and the linear region.

26. A control method of a display device comprising:
  - a pixel having a first transistor and a first light emitting element which is connected to a first electrode of the first transistor;
  - a monitoring element having a second transistor and a second light emitting element which is connected to a first electrode of the second transistor; and
  - a power source voltage controller which is connected to the pixel and the monitoring element,
- 10 wherein an input terminal of the power source voltage controller is connected to second electrodes of the first and second transistors;
- an output terminal of the power source voltage controller is connected to electrodes of the first and second light emitting elements; and
- 15 a current between the source and drain of the second transistor is controlled to set a voltage between the source and drain of the first transistor in the vicinity of the boundary between the saturation region and the linear region.

27. A control method of a display device according to claim 26:
  - wherein a current between the source and drain of the second transistor is controlled by a reference power source and a resistance, or a power source current.

28. A control method of a display device comprising:
  - a pixel having a first transistor and a first light emitting element,
  - wherein a first electrode of the first transistor and a first electrode of the first light emitting element are connected to the pixel;
  - a monitoring element having a second transistor and a second light emitting element,
  - wherein a first electrode of the second transistor and a second electrode of the second light emitting element are connected to the monitoring element; and
  - 30 a power source voltage controller,

wherein an inverted input terminal of the power source voltage controller is connected to the first electrode of the second transistor electrically;

an output terminal of the power source voltage controller is connected to a second electrode of the first light emitting element and the second electrode of the second light emitting element electrically; and

5 a voltage between the source and drain of the second transistor is controlled to set the voltage between the source and drain of the first transistor in the vicinity of the boundary between the saturation region and the linear region.

10 29. A control method of a display device according to claim 24:  
wherein the power source voltage controller is an operational amplifier.

30. A control method of a display device according to claim 25:  
wherein the power source voltage controller is an operational amplifier.

15 31. A control method of a display device according to claim 26:  
wherein the power source voltage controller is an operational amplifier.

32. A control method of a display device according to claim 28:  
20 wherein the power source voltage controller is an operational amplifier.

33. A display device according to claim 1:  
wherein the power source voltage controller is a switching regulator.

25 34. A display device according to claim 2:  
wherein the power source voltage controller is a switching regulator.

35. A display device according to claim 3:  
wherein the power source voltage controller is a switching regulator.

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36. A display device according to claim 4:  
wherein the power source voltage controller is a switching regulator.
- 5           37. A display device according to claim 11:  
wherein the power source voltage controller is a switching regulator.
- 10          38. A display device according to claim 12:  
wherein the power source voltage controller is a switching regulator.
- 15          39. A display device according to claim 13:  
wherein the power source voltage controller is a switching regulator.
- 20          40. A display device according to claim 14:  
wherein the power source voltage controller is a switching regulator.
- 15          41. A control method of a display device according to claim 24:  
wherein the power source voltage controller is a switching regulator.
- 20          42. A control method of a display device according to claim 25:  
wherein the power source voltage controller is a switching regulator.
- 25          43. A control method of a display device according to claim 26:  
wherein the power source voltage controller is a switching regulator.
- 25          44. A control method of a display device according to claim 28:  
wherein the power source voltage controller is a switching regulator.